NICK Nutritional Improvement for children in urban Chile and Kenya

BRIEFING PAPER 3

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(Nutritional Improvement for children in urban Chile and Kenya)

The social determinants of child overnutrition in Chile and the effectiveness of interventions to tackle the problem

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This Briefing Paper contains sections of the literature review relating to the social determinants of overweight children and obesity in Chile and the effectiveness of interventions to tackle the problem**.** An important starting point described in the literature review was the social transition which societies in Chile are currently undergoing due to urban lifestyles, industrialization, faster rural migration to cities, and the 'urbanization of rural settlements', market-based economy growth. This phenomenon has a greater impact on lower income families because they have fewer opportunities to choose healthy food and lead an active life (1-4).

The urbanisation process

Since people have migrated from rural to urban settlements, the options for consumption have changed from a monotonous dietary regime of cereals and vegetables to an increase in meat consumption and its derivates (mainly composed by animal fat), an increase in simple carbohydrates and industrialized types of food instead of more natural food. These changes, in part, have contributed to lower levels of child undernutrition, but over time they have led to child overweight and obesity. City life has led to several other changes most of them related to the accelerated unsustainable growth of urban settlements, where the communities living in slums and poor or unsafe neighbourhoods have difficulties in developing the social relationships needed to orientate their collective ways of life. (5)

The urbanization process is creating a wide dependence on motorized transportation and public transportation, increasing the likelihood of more sedentary lives and reducing the number of people walking or riding a bicycle. In addition to the increase in television viewing and use of video games and computers in children's daily lives, the unsafe living conditions of the slums and the peripheral neighbourhoods and the lack of space to practise physical activities, leads to the poorest people doing less physical activity and preventing their children playing outdoors. All these factors are leading to children developing a more sedentary lifestyle (2, 4, 6, 7). The peripheral neighbourhoods offer limited access to healthy food in grocery stores and mini-markets, thereby creating obstacles to parents in buying more nutritional products. The notion that food availability differs within communities is described in several studies. Most of the time this situation is related to difference in race, class and the gender of the people living in these communities. (7, 8)

Galvez, in a study carried out in low income areas in New York, demonstrated a direct correlation between higher body mass index in children from 6 to 8 years old and the presence of convenience stores in their neighbourhood (10).

Capitalism, work and gender

The new urban methods of production associated with the growth of capitalism and the economy have developed ways of life in the cities, which have also expanded to rural areas, centred around material production instead of social reproduction. (5) This is associated with informal work and work instability, in addition to longer working hours, where people are spending less time with their families and communities.

The increase in single parent families and the reduction in the fecundity index have contributed to a large increase in fertility regulation programmes, which has enabled more women to gain employment and improved the family income. This has led to a change in the old familial structures of eating, such as reducing food preparation at home and increasing the intake of fast food, spending less time eating together as a family, eating in front of the television or eating at places away from the home. These have all been viewed as important factors in the development of child obesity (6, 7, 11). Ayala studied those who ate out with relatives, neighbours or over at friends' homes and found a direct correlation between the quality of the children's dietary intake outside the home and the development of obesity (12) .

Expansion of the food industry

The urban lifestyle and growth of capitalism have contributed to the expansion of the food industry and, in some ways, has reduced (proportionally) the production of fruit and vegetables. It has lead to an increase in prices and an apparent reduction in the price of some types of industrialized, unhealthy foods, usually called 'fast food', these have became the cheaper alternative for lower incomes families, in addition to the power of satiety and tastefulness of these foods, have enabled it to become sociably acceptable and the choice of the poorest.(2)

Other consequences of the expansion of the food industry has been the increasing portions sizes, that make people consume more calories than they need to and this encourages them to eat more. This situation is worst amongst young children, between 3 and 4 years old, because they do not control their eating habits according to how hungry they feel, but by their social environment and the behaviour of their families, which leads to preschool children the modelling excessive portions throughout their adult lives. Associated to this it has become more habitual to eat out where the food available is predominantly unhealthy. (6, 7, 11)

Development of a consumer society and food marketing:

The consumer society as a model of economic and social development, is spreading in countries where the working and middle class have quickly increased their income and, as consumers are subjected to many advertisements and publicity for several types of products pressurising them to consume them. Unhealthy types of food is an example of one of these products, where many are marketed to target children offering promotions such as gifts and toys, animations, video games and films. This situation is modelling children's preferences towards unhealthy food, as already observed in school children and preschool children. (13)

Most research identifies that children are vulnerable to advertising especially due to the weight of credibility they usually give to the information that they are receiving and this situation can conduce children to address obesity and to exhibit consumerist behaviour (11, 14).

Studies in the United States show that children from 2 to 11 years old see an average of 11.5 minutes of food related TV advertising per day (16). Children and adolescents represent a very important marketing group for companies, especially food companies, because they spend lots of money on their products, but also, because they are a group who will be consumers over a long period of time, and companies invest heavily to increase brand loyalty among these consumers. (15)

If we consider that the majority of food related advertisements on television are for food with a poor nutritional value and with high energy content, it is possible to conclude that TV advertisements play an important role in developing overweight children . As Veerman suggests in a study (2009), as many as one in seven or even one in three obese children in the United States might not have been obese in the absence of advertising unhealthy food on TV. These results are consistent with studies conducted in Canada, where fast food purchasing behaviour in families from cities where publicity in TV for children

under 13 years old is forbidden (Quebec) was compared with cities where it is allowed (Ontario). The results showed that in Quebec, families consumed less.(15) Many studies show that food advertisements have a causal and direct effect on children's food preferences, knowledge and their behaviour, with respect to the brand and type of food chosen.(15)

Television not only has a strong link to obesity through the advertisements shown but it also contributes to a more sedentary lifestyle and consequently a low expenditure of energy. Eating in front of the TV is a routine which could contribute to eating more calorific food. The advertisements facilitate the purchasing power and hence availability of energy dense food. All these scenarios could contribute significantly to obesity. (17)

A consumerist society is "obesogenic", because they consume and over-consume, which as the economy grows is a trait exhibited by many and the products on offer which promote excessive energy or decreased energy expenditure are excessively marketed, so obesity is a logical consequence of this model of development and although in some ways it could be considered an example of commercial success, some authors have said it also represents a failure of the free market system because it is failing to promote social and individuals goals, by supporting obesity and its risks. (18, 19)

Cultural elements

Culture is important when considering the development of nutritional behaviour because it influences food choices, the modelling patterns of feeding, and the perception of the nutritional status of healthy and unhealthy food. As shown in some studies on the native population of Chile, their cultural background relates to their traditional nutritional patterns and lifestyle and could be a protector factor of overweight, obesity and metabolic disorders such as diabetes.(4)

The preference for food like meat instead of fruit and vegetables is reported in some studies; the choice of meat is more important than the nutritional quality of the cut (cheaper cuts) and is related to the self esteem of the family because meat is considered a status food in American culture and families prefer to spend more money on meat than other types of food. The idea that vegetables and fruit are expensive and children do not like them, is also very common. (20)

The parental perception about the nutritional status of their children could be an important factor when considering intervention measures. Two surveys carried out in Chile showed that the maternal perception of how fat their preschool children are is a risk factor in suffering overweight and obesity (21, 22). Another cultural stereotype that could contribute to obesity in girls is the view that females should be less physically active than males. (18)

Educational System

Children spend a great part of their day at school, particularly since the introduction of the full school day in the educational reform in the 1990s (38 pedagogic hours for primary school children and 42 for secondary school children, meaning they usually have to be in schools from 8 am to 4pm (MINEDUC, 2009)). School, therefore is an important space for modelling and expressing learned behaviours. This phenomenon is an important factor as primary schools are environments where children have control over what they are consuming, and when considering that they spend more than 60% on unhealthy food from kiosks in schools is a major concern (13).

Food availability for children inside schools is complemented by produce from grocery stores and off-licence vendors near schools. At least two studies, one from Canada and one from the United States, shows a correlation between the availability of fast food, snacks and sweet beverages in areas surrounding the schools and the income level of the people living in these neighbourhoods or their ethnicity (24, 25). Another study carried out in Canada with a small sample (n=188) found no correlation between these variables (26). Sturm (2008)

concluded that the increased amount of fast food available in the immediate vicinity surrounding the school could negate internal school food policies. Briefel shows that less than 10% of the daily energy consumed by children from elementary and secondary schools in United States came from food consumed outside school and the home, but these meals are the most energy-dense (27). No information was found in Chilean literature related to this matter.

Also it is important to monitor the levels of physical activity in schools, which has been demonstrated to be infrequent and the sessions are not long enough, consequently children exhibit low levels of aerobic capacity (28). Other studies have demonstrated that the educational system has had a very low impact on the nutritional status of children; these results demonstrate an incapability of schools to tackle the problem, as they cannot change the habits and customs acquired earlier on in life either in their families, nurseries or preschool education or it may also be that the school has no authority to modify the eating habits and physical activity acquired and to ensure that children maintain this at home. (1)

Family socio-economical elements

In the Latin American context, studies have shown that low income families have been less associated with obesity, (1, 29, 30) than in developed countries (11). It seems possible that with very low income families do not record child obesity (sometimes they're marked as undernutrition and overweight), but it is recorded in moderate-low and middle income families. This could be explained on the basis that the Latin American countries classification of nutritional status is in transition as has been shown above.

The effectiveness of population-based intervention to reduce and prevent overweight and obesity in children in Chile and in Valparaiso

There are several interventions which can help to tackle the problem of overweight, obesity and sedentary lifestyle in children. Most interventions have been developed in school settings in the context of the VIDA CHILE project, Health-Promoting Schools, and EGO-Escuelas (Schools-EGO). Most of them have been developed by the Primary Health Care Centres and the educational sector, in the context of intersectoral work. All these interventions have similar strategies:

- To improve physical activity, by increasing the length of gym classes, activity breaks, extra-curricular programmes of physical activities, etc.
- To reduce the intake of fat, sugar, salt, etc. during school hours: introduction of healthy snacks, development of healthy kiosks ("Quiosos saludables") in schools. This has been strongly recommended by the Ministry of Health, but these have produced poor and variable results, in the various contexts of implementation.
- To train children, parents and/or teachers about healthy lifestyles, healthy and unhealthy nutrition, physical activity and sedentary lifestyles.
- Others activities have been promoted, in this context of intersectoral work, for the community, such as long family walks, bike rides, marathons, etc.

However, most of these interventions do not yet have a clear study to define the impact on the nutritional status of children. The studies that have been conducted show that interventions are very different in terms of continuity and accuracy of the implementation, which makes it difficult to evaluate of them as a unity. These findings were presented at the first National Seminar of Health-Promoting Schools (2004) and by the EGO-Escuelas Project, presented in the Second Regional Seminar for EGO-Escuelas Project (2009), (data given for the Regional Ministerial Office of Health, Valparaíso (SEREMI de Salud, Valparaíso),

At the National Seminar of Health-Promoting Schools 45 projects from the whole country were presented. The projects were carried out in public primary schools and in kindergartens. All of these projects took a different approach to implementation to that of the programme of Health-Promoting Schools created by the Ministry of Health. The interventions were related to different aspects of health such as healthy eating, physical activity, mental health, dental care, drug use and smoking etc and environmental care. In most of these interventions have teachers, parents and communities participated in educational and community-based promotional activities at the schools? In the case of nutritional status interventions, the strategies demonstrated were mainly related to training children and their families different ways of eating healthily and how to include physical activity in their day to day lives. Some of these have been included in the curricula of nutritional education, including more physical activity for children, the development of healthy kiosks in schools, communitarian promotional activities such as, walks, and other recreational activities. During the Second Regional Seminar for EGO-Escuelas Project more than 30 projects were shown, most of them replicated the same work carried out by the scenarios described above, but specifically addressing overweight children and obesity. Some of these showed that the nutritional status results, were better after the interventions but the accuracy of the data collected is uncertain; possibly, due to the experiences shown there is an important component in community-based promotional activities which do not directly impact the children's nutritional status, but do change the perspective of the children, their families and their communities about the issue.

One relevant study is the Healthy Schools Project (PES) within the council of Olmué, (a rural area, near to Valparaíso) which has been conducted over the last 7 years, by different departments within the University of Valparaíso (Departments of Medicine, Physiotherapy, Nutrition, Deontology), where interventions were introduced in a group of primary schools in the town. In association with the practical work of students, professionals within the Primary Health Care Centre and the schools, a programme of health promotion in nutrition, physical activity and dental care has been developed, which has shown good results in terms of a reduction in obesity and or overweight in the children where interventions have taken place, during this period. (32)

Other important policies designed by MINSAL and Health Care Services, especially Primary Health Care include change in the nutritional normative, where the calorific intake was reduced in the different age groups (33). They also include improving the Human Resources in PHC; the number of nutritional specialists has increased over the last 5 years, in the context of the "Strategy of Nutritional Intervention through the Vital Cycle for the Prevention of obesity and other Non-transmissible Diseases".

Special significance has been given to the work done by the JUNAEB, an institution which is in charge of supplying food to public (and subsidised) schools, nurseries and kindergartens. They have reduced the calorific content of the meals by reducing fat, salt and sugar, and have introduced more fruits, vegetables, and fibre. Public nurseries have also improved the levels of physical activity and nutritional education in preschool children and their parents. These interventions in the nurseries and kindergartens seem to have contributed to a decrease in overweight and obesity in the children. (34)

As referred to above, despite a lot of studies and interventions on overweight and obesity in children in Chile as well as Valparaíso, there is not very much information published about the effectiveness of these efforts. In this literature review there were at least five Chilean school-based studies published, (one in 2009, two in 2008, one in 2004 and one in 2001) from researchers at INTA

(Institute of Nutrition and Food Technology from the University of Chile), that could help developing future interventions. One of these is the implementation of a pilot project (2000), studying school children (quasi-experimental study) in the fourth grade attending public schools, their mothers and teachers (Santiago, Chile), with the object of developing, validating and applying educative methods to improve the knowledge and attitudes in food, nutrition and physical activity. The results were not expected even though the knowledge acquired increased significantly as compared to the control group, it did not reach the minimum acceptable level indicated by the authors. (35)

A randomized controlled trial was carried out in Santiago (Chile) with 98 children aged between 8 and 10 years old, who were overweight or obese (BMI over 85% for their age and sex), were prepubescent (tanner stage 1) and regularly consumed sugar-sweetened beverages (SSBs). The aim was to evaluate the effects on the body composition of overweight and obese children after swapping (over 16 weeks) SSBs for milk beverages. The outcome was not persuasive; replacing the habitual consumption of SSBs with milk may have beneficial effects on reducing body mass and growth in children, but had no effect on body fat. The authors conclude this could be due to the short duration of the study or because replacing one energy-containing beverage for another does not affect these endpoints. (36)

A quasi- experimental study was carried out during 2002 in the public primary schools of Santiago, Curicó and Casablanca, with children from first to the eighth grade. The intervention was implemented for 6 months and consisted of nutritional education for children and their parents, implementation of 'healthier kiosks', competitions for children where the objective was to improve the number of healthy snacks available to children during their break times, increasing the number of hours of physical activity during class, at break times and after school. The results have shown an improvement in physical fitness but a reduction in body fat only in the boys. The possible reason for not reaching the objectives set, were the non- controlled variables of puberty and the effect it has on the distribution of body fat, especially in girls, the failed implementation of healthier kiosks due to a lack of incentives or regulations on the kiosk owners , and the short intervention period. (37)

A third quasi-experimental trial (it was a continuation of the second trial) was conducted in Casablanca, during 2003 and 2004. A school-based obesity prevention intervention was developed and implemented in all primary schools in the city, which included nutrition education and the promotion of physical activity, and other types of activities similar to the first stage in 2002. The results showed a significant decline in BMI in the participating schools for both sexes (greater in boys) and a significant improvement in physical fitness (especially in boys). Both of these trials were developed with the support of the municipal councils and private food industries. After following this cohort of students for three years the authors conclude that it is possible to reduce the prevalence of obesity in a school-based intervention. (38)

Finally it is useful to include the results of a school-based obesity prevention pilot programme including preschool and school children from first to the fourth grades attending 7 public schools located in the district of Santiago, of medium to low income families. The results of this pilot project have shown a trend towards a decrease in overweight and a stabilization in obesity and increasing of physical fitness, in the younger children (from 4 to 7 years old) but not in elder children. The authors conclude that based on these initial findings that it is feasible to implement a longer intervention recommending an improvement in the quality of physical education classes and allowing more time to train teachers and for individual counselling. (39)

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